



SAHLGRENKA AKADEMIN INSTITUTIONEN FÖR BIOMEDICIN

Utlysning

Project Title: Single-cell transcriptomic profiles of delta-cells from pancreatic islets in mice

Project duration and dates: 3 months, 12/06/23-17/09/23

Application deadline: 26th May 2023

Amount: 52,500 SEK

Project

A scholarship in single-cell genomics is hereby announced at the Institute of Biomedicine, Dept. of Medical Biochemistry and Cell Biology.

Background and Purpose

This project aims to perform single-cell transcriptomics on delta-cell subpopulations from mice, to explore the differences in expression profiles of islet cells. Islets of Langerhans from mice harbouring Delta-cells tagged with YFP (ChR2-YFP under the prosomatostatin promoter in a Cre-Lox system) will be isolated and dissociated into single cells using fluorescence activated cell sorting (FACS). This will be followed by single-cell library preparation and RNA sequencing (scRNA-seq) to explore the unique transcription profiles of the delta cells when compared to other islets cells using clustering and differentially expressed gene analysis.

Method

The methodology requires performing FACS, qPCR, optimization of single-cell RNA sequencing library preparation methods, fragment analysis and or cell culture. At the end of the project, samples are then pooled and sequenced.

Work plan/Timetable

The first 2 months will be spent setting up the established methods. The material will then be sequenced and analyzed.

Learning objectives

- In-depth understanding of genomics and molecular biology approaches to develop new single-cell transcriptomics methods to study delta cells.

Applicant:

The ideal candidates should have the following qualifications:

- M.Sc. in Genomics, System Biology, Molecular biology or equivalent
- Highly motivated, proactive and diligent.
- Experience working with molecular biology techniques in a lab, especially those related to genomics, sequencing technologies and synthetic biology (PCR, qPCR, fragment analysis, sequencing, library preparation, DNA/RNA extraction).
- Meticulous in the lab and ability to keep lab notebooks of experiments and results.
- Ability to work independently and in a team.
- Ability to summarize results and present them in internal and external meetings
- Good skills in both written and spoken English are required.

Application:

Applications should be emailed to Dr. Joan Camuñas Soler: joan.camunas@gu.se

The application should include: Motivation letter, CV including contact info.